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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,014	01/17/2002	Oscar Khaselev	KHASELEV 2-2-28	5508

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EXAMINER

WONG, EDNA

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 04/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/050,014	KHASELEV ET AL.
Examiner	Art Unit	
Edna Wong	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____    | 6) <input type="checkbox"/> Other: _____                                    |

***Specification***

- I. The abstract of the disclosure is objected to because it is unclear what is meant by "polyethylene glycol-~~ran~~-polypropylene glycol" (from page 7, line 6).

Correction is required. See MPEP § 608.01(b).

- II. The disclosure is objected to because of the following informalities:

page 2, line 23, it is unclear what is meant by "polyethylene glycol-~~ran~~-polypropylene glycol".

page 3, lines 20-21, it is unclear what is meant by "polyethylene glycol-~~ran~~-polypropylene glycol".

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Objections***

Claims **1, 8 and 10** are objected to because of the following informalities:

**Claim 1**

line 4, the word "bimuth" should be amended to the word -- bismuth --.

**Claim 8**

line 2, the word "polythylene" should be amended to the word -- polyethylene --.

**Claim 10**

line 2, the word "polyhydroxybenzine" should be amended to the word -- polyhydroxybenzene --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

Claim **8** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 8**

line 2, it is unclear what is meant by "polyethylene glycol-ran-polypropylene glycol".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by **Gernon et al.** (US Patent No. 5,296,128).

Gernon teaches an electroplating solution for plating tin-bismuth solder coatings comprising:

- (a) a sulfonic acid electrolyte (= methanesulfonic acid) [col. 3, lines 22-41];
- (b) a tin compound soluble in the electrolyte to form a tin sulfonate (= tin methanesulfonate) [col. 3, lines 22-41];
- (c) a bismuth compound soluble in the electrolyte to form a bismuth sulfonate (= bismuthous methanesulfonate) [col. 3, lines 22-41];
- (d) a non-ionic surfactant (= blocked EO/PO copolymer) [col. 4, lines 24-35];
- (e) a grain refiner (= gallic acid) [col. 3, lines 3-12]; and
- (f) an antioxidant (= gallic acid) [col. 3, lines 3-12].

The tin compound comprises a tin sulfonate (= tin methanesulfonate) [col. 3, lines 22-41].

The bismuth compound comprises a bismuth sulfonate (= bismuthous methanesulfonate) [col. 3, lines 22-41].

The sulfonic acid electrolyte comprises a soluble alkane or alkanol sulfonic acid containing 1-5 carbons (= methanesulfonic acid) [col. 3, lines 22-41].

The sulfonic acid comprises methanesulfonic acid (col. 3, lines 22-41).

The non-ionic surfactant comprises polyethylene glycol-block-polypropylene glycol (col. 4, lines 13-35).

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

**Gernon et al.** (US Patent No. 5,296,128) as applied to claims 1-6 above.

Gernon is as applied above and incorporated herein.

Gernon does not teach wherein the non-ionic surfactant comprises polyethylene glycol-block-polypropylene glycol with a molecular weight between 2000 and 10,000; wherein the non-ionic surfactant comprises polyethylene glycol-ran-polypropylene glycol with a molecular weight between 2,000 and 10,000; wherein the non-ionic surfactant comprises ethylenediamine tetrakis polyethylene glycol-block-polypropylene glycol tetrol with a molecular weight between 2,000 and 7,000; wherein the antioxidant comprises

polyhydroxybenzene; and wherein the grain refiner comprises an acrylic acid.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the electroplating solution of Gernon with wherein the non-ionic surfactant comprises polyethylene glycol-block-polypropylene glycol with a molecular weight between 2000 and 10,000; wherein the non-ionic surfactant comprises polyethylene glycol-ran-polypropylene glycol with a molecular weight between 2,000 and 10,000; and wherein the non-ionic surfactant comprises ethylenediamine tetrakis polyethylene glycol-block-polypropylene glycol tetrol with a molecular weight between 2,000 and 7,000 because Gernon teaches that the electroplating solution used has a traditional tin or tin alloy plating formulation (col. 2, lines 38-42). Surfactants and other plating bath additives in addition to gallic acid may be any of those known in the art (col. 3, lines 45-57). The non-ionic surfactant of polyethylene glycol-block-polypropylene glycol with a molecular weight between 2000 and 10,000; polyethylene glycol-ran-polypropylene glycol with a molecular weight between 2,000 and 10,000; and ethylenediamine tetrakis polyethylene glycol-block-polypropylene glycol tetrol with a molecular weight between 2,000 and 7,000 are deemed to be plating bath additives known to those in the art, possibly in commercially known surfactant compositions.

Furthermore, it does not appear that Applicants have invented these compounds

and one skilled in the art has the skill to select the appropriate non-ionic surfactant by routine experimentation based upon the desired reaction occurring since the surfactant would determine the success of the anti-foaming non-ionic grain refining property of the electroplating solution, absent evidence to the contrary.

As to wherein the antioxidant comprises polyhydroxybenzene, this would have prevented the oxidation of stannous to stannic tin as taught by Gernon (col. 3, lines 45-57).

Furthermore, Gernon teaches that the electroplating solution used has a traditional tin or tin alloy plating formulation (col. 2, lines 38-42). Surfactants and other plating bath additives in addition to gallic acid may be any of those known in the art (col. 3, lines 45-57). Since polyhydroxybenzene is a known antioxidant, the addition of polyhydroxybenzene to the electroplating solution would have been well within the skill of the art.

As to wherein the grain refiner comprises an acrylic acid, Gernon teaches that the electroplating solution used has a traditional tin or tin alloy plating formulation (col. 2, lines 38-42). Surfactants and other plating bath additives in addition to gallic acid may be any of those known in the art (col. 3, lines 45-57). Acrylic acid is deemed to be a plating bath additive known to those in the art.

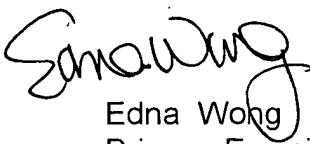
Furthermore, it does not appear that Applicants have invented this compound

and one skilled in the art has the skill to select the appropriate grain refiner by routine experimentation based upon the desired reaction occurring since the grain refiner would have determined the success of producing smooth deposits, absent evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1495.



Edna Wong  
Primary Examiner  
Art Unit 1753

EW  
April 4, 2003